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FIRST RECORD OF *CUTEREBRA ALMEIDAI* (GUIMARÃES AND CARRERA) FROM ARGENTINA, NEW HOST RECORDS FOR *CUTEREBRA APICALIS* GUÉRIN-MÉNEVILLE, AND LIST OF *CUTEREBRA* (DIPTERA: OESTRIDAE) IN THE COLLECTION OF THE INSTITUTO—FUNDACIÓN MIGUEL LILLO, TUCUMÁN, ARGENTINA

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Abstract.—We review the collections of oestrid bot flies from the Instituto—Fundación Miguel Lillo, Tucumán Argentina, with special emphasis on the genus *Cuterebra* Clark. The collection comprises seven species: *Cuterebra almeidai* (Guimarães & Carrera), *C. apicalis* Guérin-Méneville, *C. rufiventris* Macquart, *Cuterebra* sp., *Dermatobia hominis* (Linnaeus Jr.), *Gasterophilus nasalis* (Linnaeus), and *Oestrus ovis* Linnaeus. We report the first record of *C. almeidai* for Argentina. We also include *Oligoryzomys longicaudatus* (Bennett) and *Akodon caenosus* Thomas (Rodentia: Muridae) as new host species of *Cuterebra apicalis.*

Resumen.—Revisamos las colecciones de oestridos del Instituto—Fundación Miguel Lillo, Tucumán Argentina, con especial énfasis en el género *Cuterebra.* La colección comprende siete especies: *Cuterebra almeidai, C. apicalis, C. rufiventris, Cuterebra* sp., *Dermatobia hominis, Gasterophilus nasalis* y *Oestrus ovis.* Reportamos el primer registro de *C. almeidai* para la Argentina. En base a trabajo de campo, también incluimos a *Oligoryzomys longicaudatus* y *Akodon caenosus* como nuevos hospederos de *Cuterebra apicalis.*

Key Words: diptera, myiasis, rodents, taxonomy

The family Oestridae is a group of myiasis-causing flies comprising 25 valid world genera. There are two native Neotropical genera, Cuterebra Clark and *Dermatobia* Brauer, with *Alouattamyia* Townsend, *Andinocuterebra* Guimarães, *Metacuterebra* Townsend, *Pseudogametes* Bischof, and *Rogenhofera* Brauer considered junior synonyms of *Cuterebra* (Pape 2001). *Gasterophilus* Leach, *Hypoderma* Latreille, and *Oestrus* Linneaus are introduced pests from Europe (Guimarães and Papavero 1999).

Bot fly larvae of the Neotropical genus *Cuterebra* (Oestridae: Cuterebrinii) cause subdermal myiasis in more than 80 species of Neotropical mammals as well as a number of introduced mammals. Sigmodontinae rodents (Rodentia: Muridae) and squirrels (Sciuridae) are among the most susceptible

(Catts 1982, Guimarães and Papavero 1999).

The taxonomy of *Cuterebra sensu lato* is poorly understood, and the species in the genus have a large list of synonyms (Guimarães and Papavero 1999). The dispersed literature is a major problem as many of the descriptions were published during the nineteenth century in obscure journals of limited availability. Scant material is deposited in scientific collections due to the difficulty in collecting adults and the rarity of rearing cuterebrid larvae to adulthood by mammalogists (Gardner 1988).

There are relatively few reports of larvae of *Cuterebra* parasitizing rodents in Argentina (Guimarães and Papavero 1999): *Cuterebra grandis* (Guérin-Meneville) in *Akodon azarae* (Fisher), *Akodon molinae* Contreras, *Oligorizomys flavescens* (Waterhouse), *Reithrodon physodes* (Olfers), and *Sciurus aestuans* Linneus; *Cuterebra apicalis* Guérin-Méneville in *Rattus norvegicus* (Berkenhout); and *Cuterebra* sp. in *Chinchilia lanigera* (Molina). Guimarães and Papavero (1999) provided a complete review on the taxonomy of the group, including a list of hosts and a bibliographic database.

Material and Methods

The *Cuterebra* collection of the Instituto—Fundación Miguel Lillo, Tucumán, Argentina (IMLA), was identified using Guimarães and Papavero's key (1999) and original descriptions. Terminology follows McAlpine (1981). Additionally, we collected small mammals using Sherman traps (SFA model, H.B. Sherman, Tallahassee, FL) in Horco Molle, Tucumán Province, Argentina, in February of 2004. This area is a subtropical forest termed Yungas which is characterized by the presence of acid soils, year-round rainfall, and low temperatures near 0°C in the winter (Cabrera 1976). Traps were baited with oatmeal. Rodents were euthanized with ether in order to collect ecto- and endoparasites. Rodents with bot fly maggots were dissected to extract the larvae intact and allow pupation. Extracted larvae were placed in plastic jars with humid soil placed in the bottom. The jars were maintained at room temperature, with several drops of water added regularly to keep the soil humid (cf. Sabrosky 1986). Rodent hosts were identified following the guides by Barquez et al. (1991) and Díaz and Barquez (2002) and deposited in the Colección Mamíferos Lillo de la Universidad Nacional de Tucumán (CML).

Results

From the examination of the material housed at IMLA, and from the host specimens collected during fieldwork, we give a species list, report a new record of *Cuterebra* for Argentina, and present new host records for *C. apicalis*. Additionally, we give taxonomic comments on the *Cuterebra* species to help clarify their identifications.

Cuterebra almeidai (Guimarães & Carrera)

This is the first record of *Cuterebra almeidai* in Argentina. The single specimen is characterized by its large size (body length 21.85 mm; wing length 18.47 mm), black body, abdomen wider than thorax, and tergites dark brown dorsally with yellow hairs ventrally. Yellow hairs also occur on the sternites and sparsely on the pleura. Externally, this specimen resembles the darkly-colored species *Cuterebra baeri* Shannon & Greene and *C. funebris* (Austen). *Cuterebra almeidai* differs from *C. baeri* by lacking yellowish veins in the wings and by the presence of yellow hairs on the pleura and abdomen. Differences in size are also evident. *Cuterebra almeidai* is large, whereas *C. baeri* is medium-sized (body length 18–20 mm; wing length 15 mm). Guimarães and Papavero (1999) suggested that *C. almeidai* might represent a color variation of *C. funebris*. We consider *C. almeidai* as a valid species based on the following characteristics: 1) presence of yellow hairs on the pleura and the abdomen in *C. almeidai* (black in *C. funebris*); 2)

reddish-brown antennae (black in *C. funebris*); and 3) two distinctive longitudinal stripes on the prescutum (as noted in Guimarães and Carrera 1941) (three in *C. funebris*).

Specimen examined.—ARGENTINA. Salta: Parque Nacional Baritú, Río Pescado—Porongal, 700 m, 30-X/7-XI-1978, 1 adult, P. Fidalgo leg.

Cuterebra apicalis Guérin-Méneville

Five adult *Cuterebra apicalis* are in the IMLA. All specimens present typical characteristics of the species, including the shiny dark blue to dark brown tergites 1–3 in dorsal view and yellowish hairs covering the thorax and fifth tergite (Leite and Williams 1988b).

During fieldwork in Horco Molle, we recorded *C. apicalis* from two new host rodent species. We found a third instar larva in the left side of the rostrum in an adult individual of *Akodon caenosus* (CML 06383, AA 156). The larva successfully pupated two days after it was removed from the host. Pupation lasted 26 days, unlike the range of 29–34 days reported by Leite and Williams (1988a). Based on the characteristics mentioned above, the adult that emerged clearly corresponds to *C. apicalis*. Moreover, we found a small third instar larva in the lower dorsum, just above the tail, in a juvenile of *Oligoryzomys longicudatus* (CML 06382, AA 158), but the larva died before pupation. Although the third instar larvae in *Cuterebra* are very similar under light microscopy (Leite and Williams 1997), we consider this larva to be *C. apicalis* because all records from Horco Molle belong to this species. Furthermore, the entomological fauna at Horco Molle, the locality where we collected the two parazited rodents, has been well documented for more than 30 years, and *C. apicalis* has been the only species of the genus recorded in the area. Some studies also indicate that all maggots found in rodents at a given locality belong to the same species of *Cuterebra* (see Getz 1970, Hunter et al. 1972, Wolf and Batzli 2001).

Specimens examined.—ARGENTINA. Tucumán: Aconquija, 6/10-XII-1950, 1 adult, R. Golbach leg. Horco Molle, 22-XII-1965, 3-IV-1974 and 23-II-1975, 3 adults, L. Stange leg. 25-II-2004, 1 third instar larvae ex: *Oligorizomys longicaudatus* (CML 06382; AA 158), 25-II-2004 (1 third instar larvae), 27-II-2004 (pupa), 25-III-2004 (emerging adult), 1 adult and puparium, ex: *Akodon caenosus* (CML 06383; AA 156-R13), C. M. Pinto et al. leg.

Cuterebra rufiventris Macquart

We identified two specimens assignable to *Cuterebra rufiventris* based on the following characteristics: whitish microtomentum on the face; yellow hairs on the pleura; rufous scutellum; and rufous abdomen. One of the specimens has the typical five dark stripes on the scutum; the scutum of the other fly is lightly damaged, and the stripes are not visible. The specimens cannot be confused with *C. grandis* because the arista is plumose on the upper side, whereas in *C. grandis* the arista is plumose on both sides (Guimarães and Papavero, 1999).

Specimens examined.—PERÚ. Huánuco: Tingo María, Río Huallaga, 700 m, 8-VIII-1947 (third instar larvae), 10-IX-1947 (emerging adult), 1 adult and puparium, ex: "Larve unter Haut von Hausratte" (*Rattus rattus*?), W. K. Weyrauch leg. Tingo María, 670 m, no date, 1 adult, W. K. Weyrauch leg.

Cuterebra sp.

One specimen from the collection of IMLA possesses characteristics that do not resemble any described species. This specimen resembles *Cuterebra infulata* Lutz by having a well-marked yellow hair stripe around the thorax. However, *C. infulata* Lutz has black hairs on the scutellum, while our specimen has rufous microtomentum covering the scutellum. This specimen may be a new taxon and will be treated elsewhere.

Specimen examined.—ARGENTINA. Salta: Río Pescado, cerca de Orán, 24-II-1971, 1 adult, C. Porter leg.

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